

REMARKS

The present application was filed on April 25, 2001 with claims 1-33. In response to a restriction requirement, Applicants elected with traverse to prosecute claims 1-14, 16-29 and 31-33, and cancel claims 15 and 30. In the outstanding Office Action, the Examiner has: (i) rejected claims 1-3, 5, 6, 13, 16-18, 20, 21, 28 and 31-33 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,401,088 to Jagadish et al. (hereinafter “Jagadish”); and (ii) indicated that claims 4, 7-12, 14, 19, 21-27 and 29 contain allowable subject matter.

Applicants appreciatively acknowledge the indication of allowable subject matter in claims 4, 7-12, 14, 19, 21-27 and 29. However, Applicants respectfully traverse the §102(e) rejection of claims 1-3, 5, 6, 13, 16-18, 20, 21, 28 and 31-33 for at least the following reasons.

Regarding claim 32, Applicants respectfully point out that such independent claim recites similar limitations as independent claims 15 and 30, which were subject to restriction. Based on the rationale given in the restriction requirement, Applicants believe that the Examiner likely intended to include claim 32 in the non-elected grouping of claims 15 and 30. Thus, once the Examiner confirms that claim 32 should have been restricted in this manner, Applicants will address such claim.

Regarding the §102(e) rejection of claims 1-3, 5, 6, 13, 16-18, 20, 21, 28 and 31-33, Applicants assert that Jagdish fails to teach or suggest all of the limitations in said claims for at least the reasons presented below.

It is well-established law that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Applicants assert that the rejection based on Jagdish does not meet this basic legal requirement, as will be explained below.

The present invention, for example, as recited in independent claim 1, recites a computer-based method of segmenting a set of data elements into one or more groups of data elements representing one or more objects, the method comprising the steps of: generating an optimized search function; applying the optimized search function to the data elements of the set of data elements so as to prune a search space associated with the set of data elements; and applying a match function to the pruned search space so as to segment the set of data elements into the one or more

groups of data elements representing the one or more objects. Independent claims 16, 31 and 33 recite similar limitations.

By way of one illustrative embodiment, the present specification explains at page 5, lines 2-20:

As is known, image, image sequence, time series, and video data is non-structured. The volume of such data is usually large, often due to automated collection methods. In order to make effective interpretations of these data, it is necessary to impose structure by segmenting the data into groups of data elements to represent objects. Note that an object, in general, can be a phenomenon, an event, a rigid object such as a ball or a car, or a semi-rigid object like a human being. Typically, objects are represented by the aggregation of many data elements. For instance, the number of pixels forming a typical photographic image may number in the millions, but there are likely to be less than a dozen meaningful objects in the scene.

In accordance with the present invention, and as will be described in detail below, a technique is provided which, given: (i) a potentially large data set; (ii) a set of dimensions along which the data has been ordered; and (iii) a set of functions for measuring the similarity between data elements, produces a set of objects. Each of these objects is defined by a list of data elements. Each of the data elements on this list contains the probability that the data element is part of the object. The method produces these lists via an adaptive, knowledge-based search function which directs the search for high-probability data elements. This serves to reduce the number of data element combinations evaluated while preserving the most flexibility in defining the associations of data elements which comprise an object.

Jagadish is significantly different than the claimed invention. Jagadish discloses methods and apparatus for substring selectivity estimation using a pruned count-suffix tree (PST). The present Office Action cites column 1, lines 19-31, of Jagadish (referring to "optimizing structured query language (SQL) queries") in rejecting the claimed step of generating an optimized search function. The present Office Action then cites column 1, lines 32-45, of Jagadish in rejecting both the claimed steps of applying the optimized search function to the data elements of the set of data elements so as to prune a search space associated with the set of data elements; and applying a match function to the pruned search space so as to segment the set of data elements into the one or more groups of data elements representing the one or more objects. Column 1, lines 32-45, of Jagadish state:

A commonly used data structure for indexing substrings in a database is the suffix tree, which is a trie that satisfies the following property: whenever a string is stored in the trie, then all suffixes of the string are stored in the trie as well. Given a substring query, one can locate all the desired matches using the suffix tree. A count-suffix tree is a variant of the

suffix tree, which does not store pointers to occurrences of the substrings, but just keeps a count at the node corresponding to the substring in the tree. The storage requirements, nevertheless, of a full count-suffix tree can be prohibitive. Thus, methods have been proposed for estimating substring selectivity using another variation of the suffix tree: a pruned count-suffix tree ("PST") which retains only those substrings, and their counts, for which the count exceeds some prune threshold.

However, applying the above-cited rationale in the Office Action, it is unclear how Jagadish anticipates the steps of the claimed invention. The claimed invention recites a method for segmenting a set of data elements into one or more groups of data elements representing one or more objects that comprises generating an optimized search function; applying the optimized search function to the data elements of the set of data elements so as to prune a search space associated with the set of data elements; and applying a match function to the pruned search space so as to segment the set of data elements into the one or more groups of data elements representing the one or more objects. If optimizing an SQL query in Jagadish is alleged to be equivalent to generating an optimized search function, as in the claimed invention, then where does Jagadish disclose applying the optimized SQL query to a set of data elements to generate a pruned count-suffix tree (PST). Further, if the optimized SQL query is considered a search function, then is the optimized SQL query also considered the match function which gets applied to the PST so as to segment the set of data elements into the one or more groups of data elements representing the one or more objects? If so, where is this disclosed in Jagadish and how could that be the case?

Applicants respectfully suggest that such rationale is unclear because Jagadish does not perform the same operations as the claimed invention. That is, segmenting a set of data elements into one or more groups of data elements representing one or more objects, as recited in the claimed invention, is not the same as creating an index structure (PST) for estimating selectivity of substrings, as disclosed by Jagadish. Thus, Jagadish can not teach or suggest the steps of the claimed invention.

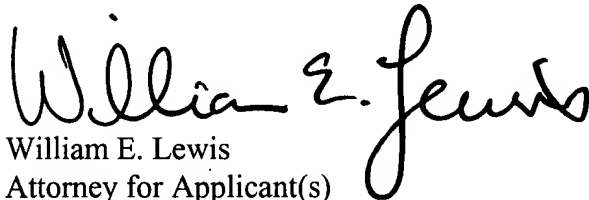
For at least the above reasons, Applicants assert that independent claims 1, 16, 31 and 33 are patentable over Jagadish. Further, Applicants assert that dependent claims 2, 3, 5, 6, 13, 17, 18, 20, 21 and 28 are patentable over Jagadish not only because they respectively depend from independent claims 1 and 16, but also because said claims recite patentable subject matter in their own right.

For example, Applicants find no support in any sections of Jagadish cited in the Office Action to properly reject dependent claims 2, 3, 5, 6, 13, 17, 18, 20, 21 and 28. Despite the contention to the contrary in the Office Action, there appears to be absolutely no teaching or suggestion in Jagadish for generating an optimized search function based on a randomly selected portion of data elements from the set of data elements (claims 2 and 17), evaluating two or more search functions (claims 3 and 18), selecting from a catalog of candidate search functions (claims 5 and 20), employing a learning algorithm (claims 6 and 21), or a user providing the set of data elements and/or a match function (claims 13 and 28).

Accordingly, withdrawal of the §102(e) rejections is respectfully requested.

In view of the above, Applicants believe that the pending claims of the present application are in condition for allowance, and respectfully request favorable reconsideration.

Respectfully submitted,

A handwritten signature in black ink that reads "William E. Lewis". The signature is written in a cursive, flowing style with a large initial 'W' and a long, sweeping tail on the 's'.

William E. Lewis
Attorney for Applicant(s)
Reg. No. 39,274
90 Forest Avenue
Locust Valley, NY 11560
(516) 759-2946

Date: August 9, 2004